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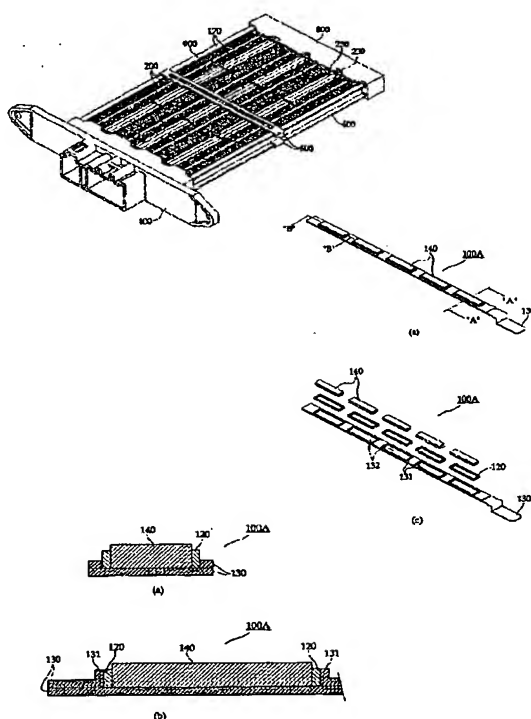
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(54) Title: PTC ELEMENT MODULE AND PRE-HEATER FOR VEHICLES INCLUDING THE SAME



(57) Abstract: Disclosed is a pre-heater for vehicles comprising: A PTC element module including a positive terminal (130) composed of two sheets, an upper sheet of which has a fastening hole (132) and upward bended ribs (131) formed at opposite edges of the fastening hole; a ring-shaped insert insulator (120) inserted between the ribs (131); a PTC element (140) inserted into an inside of the insert insulator (120), a bottom surface of which is in contact with a lower sheet of the positive terminal (130); one heat fin assembly closely fastened to one surface of the PTC element (140); another heat fin assembly fastened to the other surface of the PTC element (140) through the medium of a positive terminal (130) and an entire surface insulator (150); and a fastening insulator (170) for binding together the two heat fin assemblies, the PTC element (140), the positive terminal (130) and the entire surface insulator (150), and a heat fin assembly (260) disposed parallel to the PTC element module (100); a negative terminal (300) disposed parallel to the heat fin assembly (260); frames (600) and (900) respectively fastened to both ends of a combined body including the PTC element module (100); the heat fin assembly (260), and the negative terminal (300); and housing (400) and (800) respectively fastened to both longitudinal ends of a combined body including the PTC element module (100), the heat fin assembly (260), the negative terminal (300), and the frames (600) and (900). In accordance with the present invention, the pre-heater has advantages capable of more facilitating assembly and maintenance and remarkably improving productivity, since the PTC element module and so on may be modularized.



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